Sinergex™

PureWatts *Elite* 300

DC to AC POWER INVERTER

USER MANUAL

Sinergex Technologies
10288 South Jordan Gateway, South Jordan, Utah 84095, USA

Tel: 801 523 3866
Fax: 801 763 1221
Website: www.sinergex.com

CE

WELCOME

Thank you for purchasing a Sinergex PureWatts Elite 300 Power Inverter. Sinergex products are manufactured to the highest possible standards incorporating the latest power conversion techniques.

Please take a few moments to read this manual as it contains hints and tips to ensure correct operation and extended life of your inverter.

Throughout the manual, you will notice **CAUTION** and **WARNING** statements.

CAUTION statements relate to practices that may damage your inverter, battery, electrical system or equipment you are attempting to operate.

WARNING statements relate to practices that may cause injury or death.

CAUTION & WARNING: DO NOT USE OR ATTEMPT TO USE THIS PRODUCT UNTIL YOU HAVE READ THIS OWNERS MANUAL IN IT'S ENTIRETY. IMPROPER INSTALLATION OR USAGE OF THIS DEVICE MAY BE HAZARDOUS AND MAY CAUSE DAMAGE TO OTHER ELECTRICAL EQUIPMENT AND WILL VOID WARRANTY.

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HOW YOUR INVERTER WORKS

Your Sinergex PureWatts Elite 300 simply and silently converts DC battery power to 230V 50Hz or 110V 60Hz household mains AC electricity.

This is achieved by converting the low power battery power to high voltage DC. An advanced switching system then switches the DC at intervals to create an AC waveform (similar to household mains power) at 230 volts 50Hz or 110 volts Hz.

Sinergex PureWatts Elite Inverters are supplied standard with features generally available on larger, more expensive units – providing cleaner, more reliable AC power and extended inverter life.

Your Sinergex PureWatts Elite 300's output is known as Modified Sine Wave (MSW). This is an approximation of household grid power. It is suitable for most AC appliances.

MODIFIED SINE WAVE VS. PURE SINE WAVE

Modified Sine Wave Inverters are compact and cost effective. However, they do have a number of minor disadvantages over pure Sinewave output units (such as the Sinergex Pure Sine models).

CAUTION: Care must be taken when operating certain types of equipment to ensure that they are compatible with your Sinergex PureWatts Elite 300's output waveform. Such equipment includes chargers for some electric toothbrushes, razors, mini vacuum cleaners and some power tool chargers. When using such equipment for the first time, ensure that the charging unit doesn't become too hot. If after 5 minutes, the charger is excessively hot, the unit is not compatible with the Sinergex Elite 300 – we suggest using a Sinergex Pure Sine models instead.

Notebook Computers, Camcorders, PDA's, Handheld VHF, GPS etc are generally compatible with the output waveform of the Sinergex Elite 300.

OPERATION OF YOUR PUREWATTS ELITE 300

Your PureWatts Elite 300 is designed to be easy to use.

1. Before connecting your load, please ensure that it is properly rated for your Sinergex Elite 300. Your load should be rated at 230V AC 50Hz or 110V AC 60 Hz, up to a maximum power consumption of 300 watts (1.3A).

CAUTION: Attempting to run equipment that is far beyond the operating power of your inverter may cause damage. Operating equipment with a different AC operating voltage may cause damage to the equipment and/or inverter.

2. Your appliance should be fitted with an approved AC plug. Plug your appliance directly into the output receptacle of your Sinergex PureWatts Elite 300.

3. Your PureWatts Elite 300 is supplied with two DC connection methods – a cigarette lighter and crocodile clip cable set. Both of these connect to the positive (+) and negative (-) terminals on the rear of the unit.

   Decide which connection method suits you best and connect the appropriate cable set to the rear of your PureWatts Elite 300. Ensure that the terminals are tight. (CONT'D)

Connect the red cable to the positive (+) terminal and the black cable to the negative (-) terminal.

4. Connect the DC cable set to your battery/cigarette lighter socket.

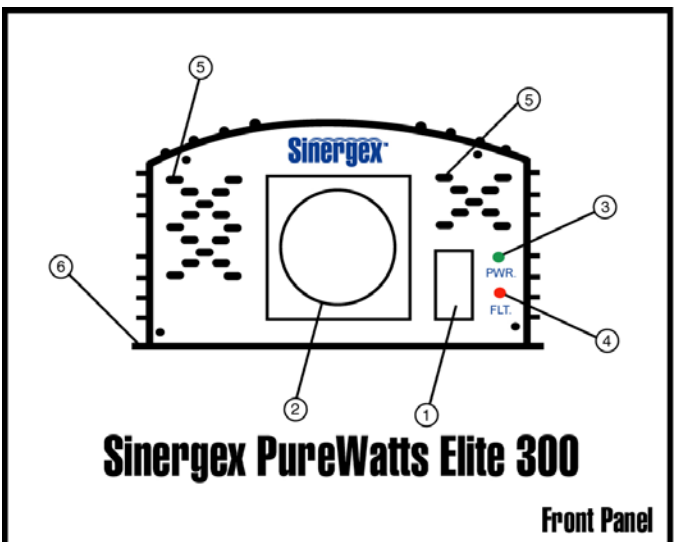
CAUTION: The Sinergex PureWatts Elite 300 is designed for use with standard automotive/marine 12V negative ground systems. If in doubt, consult your local Sinergex dealer for help.

CAUTION: Ensure all connections are tight! Otherwise at high power, terminals may get very hot.

5. Switch on the inverter using the ON/OFF switch located on the front panel of the unit.

CAUTION: Reverse DC polarity (through using the inverter on a positive ground system, reversing DC cables or faulty wiring) will cause damage to the inverter. This is detectable through damage to certain internal components and not covered under warranty. Do not hardwire the AC output of the inverter to your vehicle/boat's ring main.

INVERTER FEATURES



1. Power ON/OFF Switch. This switch turns the inverter ON or OFF for operation. When in the ON position the inverter will deliver power to the AC outlet.

(CONT'D)

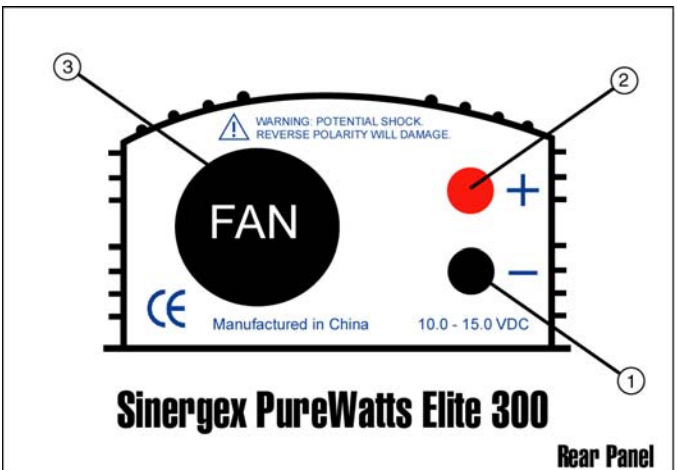
2. AC Outlet. The AC outlet design will vary from country to country. This is where you plug in your appliance or equipment for operation. Be sure to treat with extreme care just like you would at your home or office.

3. Power LED. The Power LED (Green) will illuminate when the inverter is powered ON. The power LED will not be illuminated when the inverter is switched OFF.

4. Fault LED. The Fault LED (Red) will illuminate when the inverter has a fault such as overloading, over heating, short circuit etc. Please read the instructions on the following pages your inverter has a fault.

5. Air Vents. These vents allow cool air to flow through the inverter to ensure the inverter operates at the optimum temperature for maximum performance. Do not obstruct these or allow liquid or dust to penetrate.

6. Mounting Brackets. The mounting brackets allow you to permanently install the inverter where you please. Be sure to only install in a well-ventilated and clean location free from dust and liquid.



1. Negative (-) DC Terminal.

2. Positive (+) DC Terminal.

3. Thermostatic Controlled Cooling Fan. Automatically turns on to cool the inverter when inverter reaches set temperature.

PUREWATTS ELITE 300 PROTECTION FEATURES

Overload Protection

The Sinergex PureWatts Elite 300 is protected against reasonable overloading. This means that you can, within reason, attempt to run loads that are oversized for the inverter (up to double the inverter's maximum continuous output) without damage. In the event of overload, the unit will sound an audible warning and shut down. Once the oversized load is removed, the unit will automatically re-start.

CAUTION: Continual repeat overloads or excessive overloading may damage your inverter and void warranty.

Low/High Battery Voltage Protection

In the event of battery voltage going outside of the normal operating voltages of the Sinergex PureWatts Elite 300 (11-15VDC), an audible alarm will sound and the unit will shut down. This protects internal circuitry of the inverter and the battery from excessive discharge.

Once battery voltage returns back to the inverter's normal voltage operating range, it will automatically re-start.

(CONT'D)

CAUTION: Do not connect your 12V PureWatts Elite 300 to 24V systems, damage will result and void warranty.

Overheat Protection

Inverters heat up during operation – this is normal. However, if the unit's internal temperature reaches excessive levels, a protection system shuts the unit down. Once it cools to within operating limits it will restart.

If using the inverter in hotter climates, keep it out of direct sunlight and do not cover – otherwise internal heat levels will rise – triggering the overheat protection.

Soft Start

Upon switching on, the Sinergex PureWatts Elite 300 will gradually ramp up power over a few seconds – this allows the unit to cope with heavier than normal loads that wouldn't normally be started by a small inverter.

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SPECIFICATIONS

Model	PWE-300-12	PWE-300-24
AC Output (Continuous)	300 Watts	
AC Output (Surge)	600 Watts	
AC Output Voltage	110 or 230 Volts	
AC Output Frequency	50 or 60 Hz.	
AC Output Waveform	Regulated MSW	
DC Input Voltage	10 - 15 VDC	20 - 30 VDC
Peak Efficiency	>90%	>92%
No Load Current Draw	<0.25 Amps	<0.25 Amps
Low Battery Alarm	10.7 VDC	21.4 VDC
Low Battery Shutdown	10 VDC	20 VDC
Overload Protection	Yes, Automatic Reset	
Overheat Protection	Yes, Automatic Reset	
Short Circuit Protection	Yes, Automatic Reset	
Dimensions	16.5 x 9.5 x 6.2 cm	
Weight	0.75 Kgs. / 1.65 Lbs.	

Specifications may change without notice.

TROUBLE SHOOTING GUIDE

No Output

Has the cigarette lighter socket fuse blown?

Many cigarette lighter sockets have small fuses to protect against accidental short-circuits. Also, Sinergex Inverters have an inline fuse within their cigarette lighter plug – check that this hasn't blown.

Is the cigarette lighter socket clean?

If you are a smoker and use your cigarette lighter socket, ash and dust can build up in the socket. Blow out any dust/debris.

Is the inverter's cable firmly connected to the battery?

At times the connections of your DC cables can come loose. Check each connection on both the inverter and battery and ensure they are secure.

(CONT'D)

Alarm Operates Continuously

Has one of the inverter's protection features activated?

Your inverter is fitted with a variety of protection features: Overload – remove the load (if alarm turns off, it's likely that the unit was overloaded).

Overheat – if the unit is warm/hot to touch and was functioning normally, it's likely that the overheat protection has activated. Allow the inverter to cool (unit can be either left connected or disconnected to the DC supply during this period).

Low Battery – The battery may be flat. Remember that the inverter measures battery voltage at the input connection of the inverter – if you have undersized cabling to the cigarette lighter socket or battery, voltage drop may cause your inverter to pre-maturely shut down. Also, ash/dust inside the cigarette lighter socket or terminals may create a high resistance causing low voltage. Accidentally connecting a 24V inverter to a 12V system will result in a continuous alarm – make sure that your inverter is the right voltage for your electrical system!

(CONT'D)

Unit gets excessively hot

Your inverter will operate at beyond its continuous rating for (sometimes) lengthy periods of time – the limiting factor is heat build up within the inverter unit. If your load exceeds 300 watts – the overload or overheat protection will eventually cut in.

Your inverter is rated for use in normal ambient temperatures. If using in hot climates (or within a hot car), continuous rating may be slightly lower.

Unit providing power – appliance won't operate

Some equipment is not compatible with a Modified Sine Wave (for example some audio visual equipment, some variable speed power tools etc).

There is no option but to change your appliance for one that will accept a MSW or swap the inverter for one that provides Pure Sine Wave power. Providing that your inverter is in "as new" condition, your local Sinergex dealer will normally part exchange your inverter for a Sinergex Pure Sine unit.

(CONT'D)

Battery runs flat quickly

Your battery should operate for a reasonable amount of time (generally several hours). As batteries age, they lose capacity. If the battery continuously runs flat, you should consider having it tested. If replacement is recommended, try to acquire a deep cycle battery that is happier being used with an inverter.

For further troubleshooting/technical information, please contact Sinergex or your local Sinergex Dealer. If in doubt as to the suitability for use, application or as to how to wire your inverter, contact a Sinergex Dealer or qualified electrical engineer before use.

WARRANTY AND WARRANTY PROCEDURE

Installation, Operation, Technical Support, Warranty and Service Issues should, in the first case be directed towards the outlet at which you purchased your Sinergex Pure Watts Elite inverter.

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Sinergex warrants, to the original purchaser only, for a period of 24 months from the date of purchase, that the Sinergex Pure Watts Elite Inverter will be in good working order when properly installed and operated as described in this manual.

If the unit fails within this time period under normal use, Sinergex will, without charge, at the place of Sinergex's choosing, repair or replace this unit – with new/reconditioned parts or new/reconditioned unit respectively.

(CONT'D)

This warranty is void and will not be applied if:

1. The unit has been used against the recommendations of this manual.
2. The unit has been used in an application outside of general automotive, solar, industrial or marine without the agreement of Sinergex.
3. The unit has been modified or repaired without the written authorisation of Sinergex.
4. Reverse Polarity, Excessive Overloading, General abuse, neglect, wear & tear, ingress of liquids (water, oil, acid or otherwise), foreign objects, lightning strikes, over/under voltage, RFI/EMI, etc.

Obtaining Warranty Service

To obtain warranty service, please contact the outlet at which you purchased your inverter. Do not contact Sinergex directly. You will need:

1. Proof of purchase
2. Model Number
3. Serial Number
4. Brief description of problem

(CONT'D)

Telephone your Sinergex Dealer for an Authorisation Number prior to dispatch – do not send without an Authorisation Number. Once this number has been obtained, please carefully package your unit and send (Freight Paid) to the Sinergex Dealer.

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